AASHTO
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SUBCOMMITTEE ON MATERIALS

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2017 Midyear Meeting Webinar
Tuesday, November 14, 2017
2:00 – 4:00 PM EST

TECHNICAL SECTION 3C
Hardened Concrete

I. Call to Order and Opening Remarks

Call to order at 2:05pm EST

II. Roll Call (Voting Members Only)

Brian	Egan (Chair)	TN	Present	Ross "Oak"	Metcalfe	MT	Present
Charles	Babish (VC)	VA	Not present (NP)	Mick	Syslo	NE	Present
Richard	Giessel	AK	NP	Denis	Boisvert	NH	Present
Steven	Ingram	AL	NP	Darin	Tedford	NV	Present
Paul	Burch	AZ	Present	Donald	Streeter	NY	Present
Robert	Lauzon	CT	NP	Daniel	Miller	OH	NP
Wasi	Khan	DC	NP	Kenny	Seward	OK	Present
Michael	Bergin	FL	Present	Becca	Lane	ON	Present
Brian	Ikehara	HI	Present	Greg	Stellmach	OR	NP
Michael	Santi	ID	NP	Timothy	Ramirez	PA	Present
Brian	Pfeifer	IL	Present	Jose	Lima	RI	NP
Richard	Barezinsky	KS	NP	Danny	Lane	TN	Present
John	Grieco	MA	NP	Darren	Hazlett	TX	NP
Woody	Hood	MD	Present	Kurt	Williams	WA	Present
John	Staton	MI	Present				
Brett	Trautman	MO	Present				

All attendees listed (compiled from email and the webinar attendance list):
Tim Ramirez (PA)
Denis Boisvert (NH)
Brett Trautman (MO)

Rick Bradbury (ME)
Anne Holt (MTO)
Carol Anne MacDonald (MTO)
David Jones (WA)
Michael Rigby (AZ)
John Melander (Slag and Cement Association)
Mick Syslo (NB)
Monica Flournoy (GA)
Lawrence Sutter (MI Tech University)
Jan Prowell (CCRL)
Don Streeter (NY)
Brian Ikehara (HI)
Michael Bergin (FL)
Greta Smith (AASHTO)
John Staton (MI)
Lyndi Blackburn (AL)
Brian Johnson (AASHTO)
Kevin Burns (WA)
Dan Tobias (IL)
Curt Turgeon (MN)
Scott Seiter (OK)
Larry Sutter
Michael Benson
Brian Egan
David Jones
Cecil Jones
Oak Metcalfe
Colin Lobo
Scott Andrus
Matt Needham
Craig Wilson
Wally Heyen
Darin Tedford
Mladen Gagulic
Wesley Glass
Sonya Puterbaugh (AASHTO)

III. Approval of Technical Section Minutes

A. Approval of Annual Meeting Minutes, Phoenix, AZ, August 9, 2017 **ATTACHMENT #1**
Motion to approve minutes by Oklahoma, 2nd by Pennsylvania, No Discussion, No opposing, Motion Passes and Minutes Approved

IV. Old Business

A. SOM Ballot Items

1. Item No. 11- Dual Ring Test Using Inner Concrete Ring (Fall 2016 Ballot)- 3 Negative votes persuasive, yet to receive revisions from original Author

Since there has been no activity on this standard for over a year, it will be shelved until there is interest again. Vice Chair to follow-up with Author (Jason Weiss, Oregon State University)

2. Item No. 13- make PP 65 a Full Standard (Now R-80)- some edits to Table 6 and Figure 3 are not in the printed version and are still needed. TF 16-01 – to report on significant digits.
Different zones (1, 2, and 3) in Figure 3 were not published and separation lines in Table 6 – editorial change.

3. Rolling Ballot #1, Fall 2017- Hardened Concrete, Items 15-23

Item Number:	**15**
Description:	Concurrent ballot item to add new Provisional Standard (TP xxx), Vibrating Kelly Ball (VKelly) Penetration in Fresh Portland Cement Concrete. The item is currently Appendix 4 (X4) in PP 84, Developing Performance Engineered Concrete Pavement Mixtures. See p. 4, Item #8 in Appendix C, and Appendix F of the minutes.
Decisions:	Affirmative: 44 of 51 Negative: 0 of 51 No Vote: 7 of 51

Comments:

Pennsylvania DOT (Timothy L Ramirez) (tramirez@pa.gov) Affirmative with comments:

1) In Section 2.1, shouldn't the year designation be included for T 183 since it is a withdrawn or discontinued standard? This standard was withdrawn/discontinued sometime between 1974 and 1978 as the 1974 AASHTO Published standards included AASHTO T 183-72, but the 1978 AASHTO Published standards did not include AASHTO T 183. If AASHTO T 183 is to be referenced, the year designation would be very helpful to know, so that the user knows how far back in published standards they need to look for this reference. If this reference to T 183 is just to indicate we had a similar test once upon a time (i.e., Note 1 of this standard), then perhaps remove T 183 from Section 2.1 and include T 183 as a subsection reference in Section 11 REFERENCES of this standard.
2) In Section 2.2, similar comment to previous comment, but regarding the withdrawn ASTM C360. Should it be listed as "C360-92" or listed as a subsection in Section 11 REFERENCES?

3) In Section 4.2, should "38 mm [1.5 in.]" be "37.5 mm [1.5 in.]"?

4) In Section 5.1.1.4, should specific tolerances be included for the mass/weight of the Steel Kelly ball to account for slight variations or for wear due to use? By the current specified mass/weight, some tolerance is built in due to rounding to the nearest 0.1 kg (1 lb), but is this enough?

Missouri DOT (Dave D Ahlvers) (david.ahlvers@modot.mo.gov) An affirmative vote with a few comments:

1) In Section 6.3, it indicates that a level surface is created. No information is provided on how this is done. Recommend adding some wording to describe how this is to be achieved.

2) In Section 8.1, recommend defining the variables used in the mentioned equation, Ds = Rs - Ri.

3) In Section 8.2, recommend defining the variables used in the mentioned equation, Dt = Rt - Rs.

4) In Section 9.4, recommend removing the words, "without remixing" to avoid possible confusion with Section 7.3.

Chair/Vice Chair comments:

PADOT comment #1) Most recent version was 1977. Most documents do not reference the year to avoid obsolescence. Will check with AASHTO editors to help make this decision, #2) Most recent version was 1999. Most documents do not reference the year to avoid obsolescence. Will check with AASHTO editors to help make this decision, #3) Will be revised, #4) 30 ± 0.1 lb (13.61 ± 0.05 kg)

MDOT Comment #1) Clarifying language will be added, #2) Ds will be added, Rs and Ri defined in sections 7.1.4 and 7.1.3, #3) Dt and Rt defined in sections 8.2 and 7.2.2, #4) This will be corrected.

Proposed Editorial changes were acceptable to PA (Ramirez) and MO (Trautman)

Item Number:	**16**
Description:	SOM ballot item to revise section 5.3 of T 23, Making and Curing Concrete Test Specimens in the Field, to be consistent with ASTM See p. 2, Item #1 in Appendix C, and Appendix G of the minutes.
Decisions:	Affirmative: 44 of 51 Negative: 0 of 51 No Vote: 7 of 51

Comments:

Pennsylvania DOT(Timothy L Ramirez) (tramirez@pa.gov) Editorial comment:

1) In Section 5.3, last line, suggest revising from "(greater lengths is allowed)" to "(greater lengths are allowed)".

Oklahoma DOT (Kenny R Seward) (kseward@odot.org) The end of the additions to 5.3 should be either (greater length is allowed) or (greater lengths are allowed), not (greater lengths is allowed).

Missouri Department of Transportation (Dave D Ahlvers) (david.ahlvers@modot.mo.gov) Affirmative vote with an editorial comment:1) In Section 5.3, the last sentence, it states, '(greater lengths is allowed)'. Recommend changing to, '(greater lengths are allowed)'.

Chair/Vice Chair comments- Agree, editorial change will be made before printing

Item Number:	**17**
Description:	SOM ballot item to revise section 5.3, 5.4, 6.1 and various notes in T 97, Flexural Strength of Concrete (Using Simple Beam with Third-Point Loading), to be consistent with ASTM. See p. 2, Item #2 in Appendix C, and Appendix H of the minutes.
Decisions:	Affirmative: 44 of 51 Negative: 0 of 51 No Vote: 7 of 51

Comments: None

Item Number:	**18**
Description:	SOM ballot item to revise section 10 in T 97, Flexural Strength of Concrete (Using Simple Beam with Third-Point Loading), to include updated precision and bias statements derived after a multi-lab study completed in accordance with ASTM C670.

	(Note- The ASTM C78 was balloted and passed with this new precision statement. The RR# xxx will be available after October 1 and will be included in the standard before publishing) See p. 2, Item #3 in Appendix C, Appendix D, and Appendix I of the minutes.
Decisions:	Affirmative: 44 of 51 Negative: 0 of 51 No Vote: 7 of 51

Comments: **Pennsylvania DOT (Timothy L Ramirez) (tramirez@pa.gov)** Technical comments:

1) In Table 1, the second row for 100 mm [4 in.] has a very specific modulus of rupture of 6.9 MPa [1000 psi]; whereas all the other rows include a range (e.g., 4.1 to 5.5 MPa [600 to 800 psi]), how is the user to use the second row? If they have a 100 mm [4 in.] beam depth with a modulus of rupture of somewhere between 5.5 and 6.9 MPa [800 and 1000 psi], when does the acceptable difference of 17.1% become 31.8%? Is this at 6.2 MPa [900 psi], halfway between the two rows for 100 mm [4 in.] beam depths? More guidance should be provided here due to the significant increase in acceptable percentage difference of 17.1% to 31.8%.

Editorial comment:

2) In Table 1, table footnotes should be superscript small letters, not superscript numbers. Revise Table 1 superscript "1" to superscript "a" so this reference is not confused with the numbered references at end of standard.

Chair/Vice Chair comments: Table 1 was presented as is due to the available data when determining the Precision of the test results. The author of the P&B report has provided the following explanation as to why the Precision table is as written:

We had 3 mixes with the following averages:

Mix	*4 by 4 by 14 in.*	*6 by 6 by 21 in.*
2	*986*	*935*
3	*816*	*785*
4	*609*	*580*

So, we had 2 mixtures between 600 and 800 psi and one mixture around 1,000 psi. I would expect that the variability results obtained for mixture 2 (around 1,000 psi) would apply to mixtures above 1,000 psi but, since we didn't have any other mixture above that value, we can't for sure affirm that the variability is for 1,000 and above.
In appendix J of the ASTM report, I explained what the possible reasons for the multilaboratory precision of the 1,000 psi 4 by 4 in. beams was much higher.
One of the main reasons was the use of the Rainhart machine. When you look at table J.3, you see that the COV when Rainhart machine is eliminated is 8.8 % for mix 2, while for the labs using Rainhart, that number was 16.3%. As the MR decreases, the difference in COV between all other machines and Rainhart, significantly decreases. On the same appendix, I explain several contributors for the bad performance (in terms of variability) of the Rainharts : Calibration, reading accuracy, effect of size, load capacity.

We agree with the Editorial comment and will correct before printing

Technical Explanation and Editorial change acceptable to PA(Rameriz). It is recognized that users will have some interpretation needed for test results between 800-999 psi and > 1000 psi.
The full ASTM Research Report/Interlaboratory Study (ILS 1265) is available upon request.

After the webinar, the Chairman found a typographical error in TABLE 1. The coefficient of variation for the 100 mm, 4.1 to 5.5 MPa Modulus of Rupture, will be revised from 6.0 to 6.1 to properly reflect the results in the ASTM Research Report.

Item Number:	**19**
Description:	SOM ballot item to revise multiple sections, notes, and Appendices in PP 84, Developing Performance Engineered Concrete Pavement Mixtures. (Note- If ballot Item #1 passes and becomes a Provisional Standard, editorial changes will be made to sections 2.1, 6.8, Table 3, Appendix X4 and X6 and as needed for proper reference). See p. 3, Item #5 in Appendix C, and Appendix J of the minutes.
Decisions:	Affirmative: 44 of 51 Negative: 0 of 51 No Vote: 7 of 51

Comments: None

Future changes to PP84 discussed by Cecil Jones. It is expected to have several proposed changes for the spring 2018 Technical Section ballot.

Item Number:	**20**
Description:	SOM ballot to revise T 359, Pavement Thickness by Magnetic Pulse Induction. See p. 4, Item #6 in Appendix C, and Appendix K of the minutes
Decisions:	Affirmative: 44 of 51 Negative: 0 of 51 No Vote: 7 of 51

Comments: None

Item Number:	**21**
Description:	SOM ballot item to add a new Provisional Practice (PP xxx), Grinding the Ends of Cylindrical Concrete Specimens. See p. 4, Item #7 in Appendix C, and Appendix L of the minutes.
Decisions:	Affirmative: 44 of 51 Negative: 0 of 51 No Vote: 7 of 51

Comments:

Tennessee DOT (Brian K. Egan) (brian.egan@tn.gov) In 1.2 and 4.1 There should be an option for a single cylinder grinding machine. In 4., There should be wording to make sure that the grinding machine can accommodate various standard cylinder and core sizes. (i.e. 4" or 6" cylinders, 3.70" cores) In Section 5, References to R18 should be removed and the appropriate annex of R18 should be updated with this equipment specifying concrete cylinder grinder.

Washington State DOT (Kurt R Williams) (willikr@wsdot.wa.gov) Suggest consideration be given to adding ASTM C 1604 Standard Test Method for Obtaining and Testing Drilled Cores of Shotcrete to this method in sections 2.2, 3.4, 6.1, 6.5.1 and 6.6?

Chair/Vice Chair comments: Agree, however these are considered "Technical changes" and need to be balloted. Will be balloted this spring.

Item Number:	**22**
Description:	SOM ballot item to move TP 109, Nonlinear Impact Resonance Acoustic Spectroscopy (NIRAS) for Concrete Specimens with Damage from the Alkali Silica Reaction (ASR), to a full standard. See p. 6 and Appendix M of the minutes.
Decisions:	Affirmative: 44 of 51 Negative: 0 of 51 No Vote: 7 of 51

Comments: None

Item Number:	**23**
Description:	SOM ballot item to move TP 110, Potential Alkali Reactivity of Aggregates and Effectiveness of ASR Mitigation Measures (Miniature Concrete Prism Test, MCPT), to a full standard. See p. 6 and Appendix N of the minutes.
Decisions:	Affirmative: 44 of 51 Negative: 0 of 51 No Vote: 7 of 51

Comments: None

B. Task Force Reports

1. TF 16-01- PP 65/R 80 Significant Digits and notes/ equations for Figure 3 (FHWA (Ahlstrom), PA (Horwart), MO (Trautman))
Haven't had a chance to get together on this issue yet (the only outstanding issue left). Brett and Colin are going to follow up with Gina. Bob Horwart (PA) has retired. ASTM with supposedly same Significant Digit issue.

V. New Business

A. Research Proposals (Research Liaison: John Stanton (MI))
   1. 20-7 RPS
   2. Full NCHRP RPS

B. AASHTO Re:source/CCRL
   1. TP 110- "Potential Alkali Reactivity of Aggregates and Effectiveness of ASR Mitigation Measures Miniature Concrete Prism Test, MCPT" Brian Johnson e-mail (Attachment 2)
   Section 4.1.1 states the mold sizes shall have a square cross section of 50.0 ± 0.7 mm (2.00 ± 0.03 in.), however the molds are only able in 51 mm dimensions. Believe this to be a metric soft rounding issue when the standard was first written. **ATTACHMENT #2**
   There will be a technical section ballot to revise mold sizes (and change reference from M210 to R70) .

C. NCHRP Issues

D. Correspondence, calls, meetings
   1. T 358 "Surface Resistivity Indication of Concrete's Ability to Resist Chloride Ion Penetration", formally TP 95.

The Precision and Bias Statements in TP 95 (published in 2011) , and now T 358, reference to ASTM Research Report (RR) C-9-1004. RR C-09-1004 is for "Inter-laboratory Study to Establish Precision Statements for ASTM Standard Test Method for Determining the Chloride Permeability of Concrete". This report is what established the P&B in ASTM C1202 and AASHTO T 277 "Standard Test Method for Electrical Indication of Concrete's Ability to Resist Chloride Ion Penetration". The P&B values are not the same reported in RR-C-09-1004, nor could the printed values be supported anywhere. Therefore the current P&B in T 358 are determined to be incorrect.

After some researching, FDOT provided the report "Results of Round-Robin Testing for the Development of Precision Statements for the Surface Resistivity of Water Saturated Concrete (2011)" for the P&B for T358. Concerns are: the statistics for P&B may be incorrect, and the data was collected from samples that were cured in lime saturated water, and T 358, Section 8.1/Note 2 states that " moist cure in a 100% RH moist room is the preferred curing method", and Section 5.2, notes that "lime water curing on average reduces resistivity by 10%". Therefore if the statistics are "correct", would the P&B be correct for moist room cured cylinders? **ATTACHMENT #3**
Mike is going to contact some of the people involved in this research (they are still working in the corrosion lab). Don will also join the group with looking into this issue.

This will become a Task Force (TF 17-01).

E. Presentation by Industry/Academia
F. Proposed New Standards
G. Proposed New Task Forces
H. Standards Requiring Reconfirmation

I. SOM Ballot Items (including any ASTM changes/equivalencies)
1. PP xxx, "Grinding the Ends of Cylindrical Concrete Specimens", revise to include reference to ASTM 1604 and single grinding machine (see Ballot #21 comments above)
2. TP 110/ New Standard number "Potential Alkali Reactivity of Aggregates and Effectiveness of ASR Mitigation Measures Miniature Concrete Prism Test, MCPT"- revise section 4.1.1 mold size to 50.8 ±0.07 mm and revise reference from M 210 to R 70.

These will be sent to TS ballot.

J. Standard Stewards- Assignment of standards to State/Industry
   i. Volunteers **ATTACHMENT #4**
   STILL in need of Volunteers

VI. Open Discussion

Referencing withdrawn/outdated/obsolete standards:

Evan Rothblatt via Brian Johnson: No need to reference the date on withdrawn/obsolete standards. Maybe the last date can be referenced in Significance and Use?
Oak: From the EC meeting in August, if there's no date, then it's assumed to be last published version.
Cecil: It's assumed to be the last published date.
Tim (PA): Aren't we replacing these standards? Include it in the references anyway so that the reader knows what the new standard is based on.

VII. Adjourn at 3:06pm EST.

Technical Section 3C- Hardened Concrete Properties- Standard Stewards

Designation	Title	Steward	DOT/Affiliate	Phone/e-mail
~~R 39-17~~	~~Making and Curing Concrete Test Specimens in the Laboratory~~	Moved to TS 3B- Summer 2017		
R 72-15	Match Curing of Concrete Test Specimens			
R 80-17	Determining the Reactivity of Concrete Aggregates and Selecting Appropriate Measures for Preventing Deleterious Expansion in New Concrete Construction	Brett Trautman	Missouri DOT	573-751-1036 Brett.Trautman@modot.mo.gov
R 81-17	Static Segregation of Hardened Self-Consolidating Concrete (SCC) Cylinders			
T 22-17	Compressive Strength of Cylindrical Concrete Specimens	Tim Ruelke	Florida DOT	Timothy.Ruelke@dot.state.fl.us
~~T 23-17~~	~~Making and Curing Concrete Test Specimens in the Field~~	Moved to TS 3B- Summer 2017		
T 24M/T 24-15	Obtaining and Testing Drilled Cores and Sawed Beams of Concrete			
T 97-17	Flexural Strength of Concrete (Using Simple Beam with Third-Point Loading)	Tim Ruelke	Florida DOT	Timothy.Ruelke@dot.state.fl.us
T 140-97 (2016)	Compressive Strength of Concrete Using Portions of Beams Broken in Flexure			
T 148-15	Measuring Length of Drilled Concrete Cores	Mick Syslo	Nebraska DOT	(402) 479-4750 Mick.Syslo@nebraska.gov
T 160-17	Length Change of Hardened Hydraulic Cement Mortar and Concrete			
T 161-17	Resistance of Concrete to Rapid Freezing and Thawing			
T 177-17	Flexural Strength of Concrete (Using Simple Beam with Center-Point Loading)			
T 178-15	Portland-Cement Content of Hardened Hydraulic-Cement Concrete			
T 198-15	Splitting Tensile Strength of Cylindrical Concrete Specimens			
T 231-17	Capping Cylindrical Concrete Specimens			
T 259-02 (2017)	Resistance of Concrete to Chloride Ion Penetration			

T 260-97 (2016)	Sampling and Testing for Chloride Ion in Concrete and Concrete Raw Materials			
T 276-17	Measuring Early-Age Compression Strength and Projecting Later-Age Strength			
T 277-15	Electrical Indication of Concrete's Ability to Resist Chloride Ion Penetration			
T 323-03 (2016)	Determining the Shear Strength at the Interface of Bonded Layers of Portland Cement Concrete			
T 332-07 (2016)	Determining Chloride Ions in Concrete and Concrete Materials by Specific Ion Probe			
T 334-08 (2016)	Estimating the Cracking Tendency of Concrete			
T 336-15	Coefficient of Thermal Expansion of Hydraulic Cement Concrete	Brett Trautman	Missouri DOT	573-751-1036 Brett.Trautman@modot.mo.gov
T 356-15	Determining Air Content of Hardened Portland Cement Concrete by High-Pressure Air Meter			
T 357-15	Predicting Chloride Penetration of Hydraulic Cement Concrete by the Rapid Migration Procedure			
T 358-17	Surface Resistivity Indication of Concrete's Ability to Resist Chloride Ion Penetration	Darrin Tedford	Nevada DOT	(775) 888-7784 DTedford@dot.nv.gov
T 359-16	Pavement Thickness by Magnetic Pulse Induction			
- T 363 17	Evaluating Stress Development and Cracking Potential due to Restrained Volume Change Using a Dual Ring Test	Darrin Tedford	Nevada DOT	(775) 888-7784 DTedford@dot.nv.gov
- T 364 17	Determination of Composite Activation Energy of Aggregates due to Alkali Silica Reaction (Chemical Method)			
- T 365 17	Quantifying Calcium Oxychloride Amounts in Cement Pastes Exposed to Deicing Salts			
~~PP 54-06 (2015)~~ Now R 72-17	~~Match Curing of Concrete Test Specimens~~			
~~PP 58-12 (2015)~~ Now R 81-17	~~Static Segregation of Hardened Self-Consolidating Concrete (SCC) Cylinders~~			

~~PP 65-11 (2016)~~ Now R 80-17	~~Determining the Reactivity of Concrete Aggregates and Selecting Appropriate Measures for Preventing Deleterious Expansion in New Concrete Construction~~			
TP 109-14 (2016)	Nonlinear Impact Resonance Acoustic Spectroscopy (NIRAS) for Concrete Specimens with Damage from Alkali-Silica Reaction (ASR)			
T 379-18 (wasTP 110-14 (2016))	Potential Alkali Reactivity of Aggregates and Effectiveness of ASR Mitigation Measures (Miniature Concrete Prism Test, MCPT)	Mick Syslo Wally Heyen	Nebraska DOT	(402) 479-4750 Mick.Syslo@nebraska.gov wally.heyen@nebraska.gov
TP 119-15	Electrical Resistivity of a Concrete Cylinder Tested in a Uniaxial Resistance Test			
TP 129- 18	Vibrating Kelly Ball (Vkelly) Penetration in Fresh Portland Cement Concrete			
PP 84- 17	Performance Engineered Concrete Pavement Mixtures			
PP 89- 18	Grinding the Ends of Concrete Cyclinder Specimens			